

Key Points

- Cigarettes discarded from slow-moving or stationary vehicles can start mulch fires.
- In WA, cigarettes start over 500 mulch fires a year.
- The requirements for a mulch fire to start are: hot and dry conditions, fine, aerated fuels and a heat source such as a cigarette.

* Source— CSIRO, 2003, *Fire fact of the Month—No butts about it*, Bushfire Behaviour and Management.

DFES attends more than 500 mulch fires a year. Most mulch fires are caused by discarded cigarettes under hot, dry conditions—smouldering for extended periods along roadsides, particularly at traffic lights.

When mulch fires are likely to occur

Mulch fires are likely to occur:

- after long periods without rain, generally between December and April
- when the moisture content is low (less than 7%)
- when temperatures are high (above 30°C)
- when the relative humidity is low (below 30%).

How mulch fires are likely to occur

Local governments and other agencies use mulches, such as green waste, for landscaping verges and median strips to control weeds, prevent erosion and conserve water.

The type of mulch affects how easily a fire can start. Fine shredded and aerated mulches catch fire more easily than coarse and compacted mulches. Coarse woodchip mulches are recommended as they are harder to ignite.

How a cigarette is discarded will influence whether a fire will start. Experiments by the CSIRO* show that, unless under extreme bushfire conditions, a fire is more likely to start from a cigarette disposed of from a slow-moving or stationary vehicle than from a vehicle travelling at 80 km/h.



Landscaping and Mulch Fires

When landscaping, it is worth considering alternatives to mulches such as paving, permeable pebblecrete, gravel and crushed brick as they are non-flammable.



At intersections, traffic lights and areas of low speed, mulch fires can be prevented by using a coarse, compacted mulch instead of a fine, aerated mulch. Mulch should be spread at the end of autumn as the winter rains will wash the fine material away from the surface.

Treatment options

There are treatment options available to reduce the risk of a fire starting in mulch. These are outlined below.

Treatment options	Costs for large areas (2500m ²)	Constraints
Signage (aluminium) Local government or Main Roads approval required.	Sign manufacture and placement approximately \$270 per sign.	Provides driver and passenger education, may not influence persistent behaviours.
Watering Evenly apply at least 3mm of water every four days when temperatures are greater than 30°C.	Water truck hire approximately \$450 per application. If external hoses are required the additional labour cost needs to be considered.	Time-consuming, exposure to traffic risks and frequent repetition required.
Irrigation Evenly apply at least 3mm of water every four days when temperatures are greater than 30°C.	Installation, maintenance and water use for drip systems approximately \$16m ² and spray systems \$9m ² .	Irrigation of mulch may be socially unacceptable during periods of restricted water use.
Fire Retardant (Phos-Chek) <ul style="list-style-type: none"> Follow manufacturer's safety instructions. Applied at 12–15% concentration, mix 14 kg of retardant per 100L of water. Evenly apply mixed solution at 0.5L/m². 	Retardant cost of \$1.50 per m ² . Water truck hire approximately \$450 per application.	Re-application required after rain. Phosphorus and sulphur content may affect sensitive vegetation and waterways.
Cement Dust Apply 20kg of dry powder per 10–15m ² .	Cement dust approximately \$12 per 20kg bag. Application cost will also need to be considered.	The treated area will become water repellent and this may be detrimental to vegetation.
Compacting (large plate compactor)	Equipment hire approximately \$185 per day. Labour cost will also need to be considered.	Time-consuming and can be detrimental to vegetation.

 **For more information contact the Environmental Protection Branch on 9395 9300, email: environment@dfes.wa.gov.au or visit www.dfes.wa.gov.au**